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EXAMINER	
STEELE, JENNIFER A	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/921,323	GILLESPIE ET AL.	
	Examiner	Art Unit	
	JENNIFER STEELE	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-10,29 and 30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-10,29 and 30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Reopening after Board Decision

In view of the Board Decision filed on 12/18/2009, PROSECUTION IS HEREBY REOPENED to further address the teachings of the Gessner reference (US 5,443,898) which was relied upon in Appeal 2009-007866 (Serial Application # 10/437,170).

A Director or Director delegate has approved of reopening prosecution by signing below:

/Gregory L Mills/

Supervisory Patent Examiner, Art Unit 1700

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 8 recites the limitation "second polymer component" in claim 8. There is insufficient antecedent basis for this limitation in the claim. It is unclear if the second polymer component is the second polymer of claim 7 that comprises reclaim polypropylene.

2. Claim 8 recites the limitation "first polymer component" in claim 8. There is insufficient antecedent basis for this limitation in the claim. It is unclear if the first polymer component is the first polymer of claim 7 that comprises virgin polypropylene.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claim 1-10, 29 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Hills (US 5,162,074) in view of Geus et al. (US 5,814,349) and in further view of Gessner et al (US 5,443,898).** Hills is directed to an apparatus and process for making multi-component yarns and bicomponent fibers.

Hills teaches distributing each separate component to an array of inlet holes for multiple spinneret orifices (claim 1). Hills teaches a spin pack assembly where the assembly includes plates, sandwiched together from top to bottom in the following sequence; a top plate a screen support plate a metering plate an etched distributor plat and a spinneret plate. (col 8, lines 60-68; col. 9 lines 1-5). Hills teaches a spinneret orifice array with varying densities of 4000 in 24 inches (col. 11, lines 15-22), which is equivalent to 6,600 orifices/ sq. meter (col. 20, lines 7-25). Hills teaches a distribution plate with distribution flow passages formed by etching (col. 12, lines 27-30). Hills

teaches quench air that contacts the filaments by flowing transversely across fibers (col. 23, lines 28-50).

Hills teaches polypropylene in the sheath and core of the bicomponent filament and teaches the polypropylene can be of the same melt flow index or different melt flow index as shown in Table 1 of Hills (col. 27 and 28). Applicant describes reclaim polypropylene as polypropylene that has been previous previously been spun into fiber in the specification as follows.

> [0004] Recycling such polypropylene is well known in the nonwoven industry. However once the polypropylene goes through the spinning process it is partly degraded by oxidation so that the polymer molecular weight is reduced. This effect can be partly mitigated by the optimized addition of antioxidants. However some degradation is always seen. Such degradation can be seen by measuring the melt flow rate of the processed polymer. The melt flow rate will increase.
>
> [0025] The polymer components for multicomponent filaments are selected in proportions and to have melting points, crystallization properties, electrical properties, viscosities, and miscibilities that will enable the multicomponent filament to be melt-spun and will impart the desired properties to the nonwoven fabric. At least one of the component is formed from reclaimed polypropylene recovered from previously spun polypropylene fiber or webs comprised of previously spun polypropylene fiber. The reclaimed polypropylene will have been subjected to at least two heat histories in which the polypropylene has been melted and resolidified: once when the virgin polypropylene resin (in pellet or flake from as received from the polymer manufacturer) was originally melted and extruded to form the original filaments and webs, and at least once again when the reclaimed polypropylene was remelted and formed into the filaments and webs of the present invention. In many instances, the polypropylene will have undergone an additional melting and resolidification when the waste polypropylene, in the form of the filaments or webs which are being reclaimed, is remelted and formed into pellets or flake suitable for processing in the extruders of the spunbond equipment. As a result of the prior heat histories, the reclaimed polypropylene exhibits a melt flow rate higher than that of virgin polypropylene, typically at least 5 melt flow units greater.

Hills differs and does not teach utilizing a reclaim polypropylene as the core polymer component.

Hills differs from the current application and does not teach an apparatus or method for bonding the filaments. Hills does not teach an attenuator and Hills does not

teach depositing the fibers on a continuous air-permeable web and applying suction beneath the air permeable belt to draw air through the belt.

Geus teaches an apparatus for the continuous production of a spun bond web (Title). Gues teaches an apparatus for producing and bonding spunbond filaments that can be used to provide a wide range of products and the apparatus is flexible with respect to the products made and the materials which can be handled in the apparatus. The apparatus allows for operating conditions within the apparatus to be varied in a sufficiently wide range of relationships to accommodate a large variety of materials and for the production of a wide range of products without the limitations of characterizing earlier spunbond production systems (col. 2, lines 31-44).

Gues teaches producing filaments from a spinneret and then cooling the filaments with a process air blower (col. 3, lines 20-23). The process air blower is independently controlled (col. 2, lines 55-58). This step is equated with the claimed "directing quench air from a first independently controlled blower into the quench chamber".

Gues teaches stretching the filaments which are aerodynamically entrained by process air (col. 3, lines 24-29). This step is equated with the claimed “directing the filaments and the quench air into and through a filament attenuator and pneumatically attenuating and stretching the filaments”.

Gues teaches a web depositing system below the channel and including a downwardly diverging diffuser having a mouth at which a web of filaments is deposited, process air from the channel passing into the diffuser (col. 3, lines 31-35). This step is

equated with the claimed directing filaments from the attenuator into and through a filament depositing unit.

Geus teaches the aerodynamically stretched thermoplastic filaments and depositing the filaments on a perforated sieve belt, also referred to an air-permeable belt, (col. 3, lines 35-42). This step is equated with the claimed “depositing the filaments from the depositing unit randomly upon a moving continuous air-permeable belt to form a nonwoven web”.

Gues teaches a suction blower for drawing air downwardly in the diffuser and drawing the thermoplastic aerodynamically stretched filaments against the belt (col. 3, lines 51-55). The suction air blower below the belt is independently controlled (col. 2, lines 55-58). This step is equated with the claimed “applying suction form a second independently controllable blower beneath the air permeable belt so as to draw air through the depositing unit and through the air permeable belt”.

Gues teaches bonding the web through first and second pressing rollers (col. 3, lines 47-50). This step is equated with “directing the web through a bonder and bonding the filaments to convert the web into a coherent nonwoven fabric”.

It would have been obvious to one of ordinary skill in the art to employ the apparatus and method of Gues to produce a spunbond web from filaments produced in the apparatus and method of Hills motivated to employ an apparatus and process that is flexible and can accommodate a wide range of bicomponent filament materials.

The combination of Hills and Gues fails to teach reclaim polypropylene in the core at 100% by weight and reclaim polypropylene in the filament at 25% or greater.

Gessner teaches that it is known in the art to produce extruded fibers from a reclaim polypropylene. Gessner teaches a process for producing nonwoven webs from a polyolefin (ABST). Gessner teaches the melt spun process for melt blowing a polymer at high throughputs comparable to throughput speeds for low molecular weight polymer. Gessner teaches a process particularly useful for processing reclaimed polypropylene such as polypropylene reclaimed from filaments from spunbonding processes (col. 4, lines 42-48).

The Gessner process includes a polymer source and a prodegradant source and dry blending the components. After dry blending, heat is applied to the mixture to melt the polymer and extrude into a fiber as shown in Fig. 1 (col. 3 and 4, lines 65-68, 1-28). The prodegradant is comprised of a polymer, an initiator such as a peroxide initiator (col. 3, lines 5-27). The polymer source can be 100% reclaim polypropylene (col. 8, Table 2). The prodegradant comprises a peroxide initiator which reacts with the reclaim polymer to skew the molecular weight distribution by increasing the ratio of low molecular weight to high molecular weight and the resultant material processes as if it were a low molecular weight polymer but provides fibers and nonwovens fabric having a higher strength than those produced by low molecular weight polymers (col. 3, lines 28-47).

As to Applicant claims of “**separately** melting two or more polypropylene polymer components, at least one component including reclaimed polypropylene" , "the polymer component containing reclaimed polypropylene being present in the core and the reclaim polypropylene being in an amount up to 100% by weight, and the total amount

of reclaimed polypropylene in the filaments being 25% by weight or greater". Gessner teaches a process where at least one polypropylene polymer component is 100% reclaim. Gessner teaches the two polymer components are dry blended and then melted. Applicant is claiming a process **comprising** the steps and does not exclude a step of dry blending a polymer component before **separately** melting the components. The prodegradant is added with the 100% reclaim polymer source in an amount of 1-4% however the prodegradant reacts with the 100% reclaim polymer and the melt stream is equated with a 100% reclaim polypropylene stream.

Therefore the process of Gessner presents a finding that one of ordinary skill in the art could produce fiber from 100% reclaim polypropylene and it would be obvious to substitute the 100% reclaim polypropylene for virgin polypropylene. Therefore it would have been obvious to substitute reclaim polypropylene in the sheath and/or the core of a bicomponent fiber. It would have been obvious to produce a bicomponent filament wherein the reclaim polypropylene in the filaments being 25% by weight or greater motivated by Gessner's process of using 100% reclaim polypropylene to produce a melt spun fiber.

Hills teaches a process and apparatus for producing bicomponent polypropylene filaments with differing melt flow rates. Gues teaches a process of producing filaments and a spunbond web that is flexible to accommodate different types of filaments and materials. Gessner teaches a process that uses 100% reclaim polypropylene from previously spun polypropylene filaments.

As to claim 1, 7, 9 and 10, it would have been obvious to substitute polymer components of reclaim material in the process of Hills and produce into a nonwoven web by the process of Gues motivated to produce spunbond filaments and fabric from reclaim polypropylene. It further would have been obvious to make the substitution of reclaim polypropylene for virgin polypropylene in the process of Hills and Gues as the claims do not recite any process changes or optimization are required to make the substitution. It further would have been obvious to substitute a reclaim polypropylene in the core with a different melt flow rate as taught by Hills motivated to reclaim polypropylene that was previously produced. Gessner presents further evidence that it is known in the art to produce a melt spun fiber from 100% reclaim polypropylene and it would have been obvious to produce a bicomonent fiber with greater than 25% reclaim polypropylene and the results of the substitution would have been predictable.

As to claim 4, Hills teaches the sheath and/or core component can be polypropylene and the polypropylenes can have a different melt flow indexes in the sheath and the core as shown in Table I (col. 27 and 28). Gessner teaches adding a polymeric stream of 100% reclaim polypropylene in order to produce an extruded fiber. It would have been obvious to substitute a reclaim polypropylene in the core of the filament motivated to recover previously spun polypropylene and reduce waste and cost.

As to claim 5, Hills teaches a process which uses a sheath of virgin polypropylene.

As to claim 6, Hills differs from the current application and does not teach blending virgin polypropylene and reclaim polypropylene. Gessner teaches blending reclaim polypropylene with a prodegradant that comprises polymer and a free radical generating chemical (col. 3, lines 5-15). The polymer in the prodegradant can be any polymer such as a polypropylene (col. 4, lines 34-48). The polypropylene is equated with virgin polypropylene. Gessner teaches the reclaimed polypropylene is blended with a polypropylene. Gessner also presents a finding that one of ordinary skill in the art can substitute a reclaim polypropylene for a virgin polypropylene. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a blend of reclaim and virgin polypropylene in the sheath motivated to optimize the consumption of reclaim polypropylene.

As to claim 8, Hills teaches first and second polymers where the melt flow rate of one polypropylene polymer is at least 5 melt flow units greater than the second polypropylene polymer (Table I, col. 27 and 28). Hills teaches the melt flow rates of the sheath polypropylene can be 36 MFI or 75 MFI and the core polypropylene can be 35, 36 and 75 MFI. Hills presents a finding that it would have been obvious to employ a second polymer that has a melt flow rate of at least 5 units greater than the first polymer.

Claims 29 has added limitations with respect to the spinning apparatus. Hills teaches the spinning apparatus as claimed. Hills teaches the spin pack assembly include plates, sandwiched together. The top plate has inlet ports to receive the mutually separated polymer components (col. 8 lines 67-68 and col. 9, lines 1-17). Hills

teaches a metering plate having metering apertures drilled to provide flow distribution (col. 11, lines 63-65). Hills teaches a plate with spinneret orifices and a distribution plate with flow passages to direct the first and second polymers, A and B to form a composite polymer stream (col. 12 and 13, lines 27-68 and 1-18). Hills teaches forming sheath and core polymers.

Claim 30 has added the limitation of a spinneret orifice array density of at least 3000 orifices per meter of length. Hills teaches a spinneret orifice array with varying densities of 4000 orifices in 24 inches which is equivalent to 6,600 orifices per meter (col. 11, lines 15-22).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER STEELE whose telephone number is (571)272-7115. The examiner can normally be reached on Office Hours Mon-Fri 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 1794

/Rena L. Dye/
Supervisory Patent Examiner
Art Unit 1794

3/17/2010